

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application.

Listing of Claims:

Claim1 (currently amended): The process for the preparation of a sprayable polymeric material having a fibrous material, comprising:

- a) providing a fibrous material;
- b) providing reaction components comprising a polyol and an isocyanate;
- c) heating the reaction components to a temperature from about 160° F to 250° F;
- d) adding the fibrous material to the polyol component, to the isocyanate component, or to both; and
- e) reacting the reaction components, whereby to create the polymeric material having no volatile organic compounds.

Claim 2 (original): The process of claim 1 further comprising heating the fibrous material to a temperature from about 140° F to 160° F, prior to adding the fibrous material to the reaction components.

Claim 3 (previously presented): The process of claim 1 wherein the fibrous material is dry.

Claim 4 (previously presented): The process of claim 1, further comprising, prior to adding the fibrous material, pre-wetting the fibrous material to (i) about 10% by volume of the total volume of polyol component, (ii) about 10% by volume of the total volume of isocyanate component, or (iii) about 10% by volume of the total volume of both components combined.

Claim 5 (previously presented): The process of claim 1 wherein the fibrous material is an aramid, polyethylene, fullerene, nanotube, ceramic fiber, or mixtures thereof.

Claim 6 (previously presented): The process of claim 5, wherein the aramid fiber is aramid fiber pulp.

Claim 7 (previously presented): The process of claim 1, wherein the fibrous material is from about 0.5 weight % to 1.0 weight percent of the total weight of the composition.

Claim 8 (canceled) ~~The process of claim 1 wherein the heating of the reaction components is from about 160F to 250F.~~

Claim 9 (original): The process of claim 1, wherein the polyol component and the isocyanate component are provided in a 1:1 ratio by volume.

Claim 10 (original): The process of claim 1, further comprising adding water to the polymeric material, whereby to create a matrix of closed cell polyurethane.

Claim 11 (previously presented): The process of claim 10, further comprising molding the closed cell polyurethane, wherein the molding is either in normal atmospheric conditions or under 2-3 atm of pressure.

Claim 12 (original): The process of claim 1, wherein the adding of the fibrous material to the polyol, the isocyanate, or both, is by mixing, whereby to randomly locate the fibrous material within the polyol, the isocyanate, or both.

Claim 13 (currently amended): A process for the preparation of a composite of a sprayable polymer resin having a reinforcing fiber, comprising adding the reinforcing fiber to a solution of a first polymeric polymerization reactant material solution and to a solution of a second polymeric polymerization reactant material solution, reacting the first and second polymerization reactant solutions, whereby the reinforcing material is incorporated homogeneously without causing separation during the curing reaction between the first and second polymeric polymerization reactant material solutions.

Claim 14 (currently amended): The process for the preparation of a sprayable polymeric material having a fibrous material, comprising:

- a) providing a fibrous material;

- b) providing a first and second reaction component, wherein the first and second reaction components contain no volatile organic compounds and react to form a polyurethane, polyester, epoxy, or polyurea;
- c) heating the reaction components to a temperature from about 160° F to 250° F;
- d) adding the fibrous material: to the first reaction component; to the second reaction component; or to both the first and second reaction component; and
- e) reacting the first and second reaction components, whereby to create the polymeric material.

Claim 15 (currently amended): A spray nozzle for mixing and spraying a first ~~polymeric~~ polymerization reactant material with a second ~~polymeric~~ polymerization reactant material, at least one of the polymerization reactant ~~polymeric~~ materials containing a fibrous material, forming a two part polymer comprising: a check valve without springs, a hose for conveying said first and second ~~polymeric~~ polymerization materials to a ball valve, said nozzle spraying a mixture of the first and second polymerization materials from said check valve onto a surface.

Claim 16 (previously presented): The spray nozzle of claim 15 wherein the fibrous material is an aramid, polyethylene, fullerene, nanotube, ceramic fiber, or mixtures thereof.

Claim 17 (previously presented): The spray nozzle of claim 16, wherein the aramid fiber is aramid fiber pulp.

Claim 18 (currently amended): A reinforced structure comprising a first and second layer of a polyurethane resin containing a fibrous material from about 0.5 to 1.0% by weight of a ~~fibrous material~~ the resin, and a third layer sandwiched between the first and second layers, said third layer comprising polyurethane foam containing a second fibrous material from about 0.5 to 1.0% by weight of the foam ~~sandwiching a layer of polyurethane foam containing from about 0.5 to 1.0% by weight of a fibrous material.~~

Claim 19 (currently amended): The reinforced structure of claim 18, wherein each of the first and second fibrous material is materials is selected from the group consisting of an aramid, polyethylene, fullerene, nanotube, ceramic fiber, ~~or~~ and mixtures thereof.

Claim 20 (previously presented): The reinforced structure of claim 19 wherein the aramid fiber is aramid fiber pulp.

Claim 21 (previously presented): The reinforced structure of claim 18 wherein the thickness of the first and second layers of polyurethane resin are about 100 mils.

Claim 22 (currently amended): The reinforced structure of claim 18 further comprising a ~~panel~~ reinforcement structure between said first ~~or~~ and second layer of polyurethane resin.

Claim 23 (previously presented): A method of coating a reinforcement structure having a top and a bottom side with a polyurethane composition comprising:

- a) providing a fibrous material;
- b) providing reaction components comprising a polyol and an isocyanate;
- c) heating the reaction components;
- d) mixing the fibrous material with the polyol, the isocyanate, or both;
- e) reacting the reaction components, whereby to create a polymeric resin;
- f) spraying the top of the reinforcement structure with a polymeric foam containing a second fibrous material; and
- g) spraying the polymeric foam, on top of the reinforcement structure, with the polymeric resin, prior to cure of the polymeric resin.

Claim 24 (original): The method of claim 23, further comprising spraying the bottom side of the reinforcement structure with the polymeric foam.

Claim 25 (previously presented): The method of claim 24, further comprising spraying the polymeric foam, on the bottom side of the reinforcement structure, with the polymeric resin.

Claim 26 (original): The method of claim 23, wherein the step of reacting the reaction components is performed in an inert atmosphere.

Claim 27 (previously presented): The method of claim 23, wherein the first and second fibrous materials are aramid, polyethylene, carbon, or ceramic fiber, or mixtures thereof.

Claim 28 (previously presented): The method of claim 27, wherein the aramid fiber is aramid fiber.

Claim 29 (previously presented): The method of claim 23, wherein the fibrous material is from about 0.5% to about 1.0% by weight of the polyurethane composition.

Claim 30 (original): The method of claim 23, wherein the heating is from about 160°F to about 250°F.

Claim 31 (original): The method of claim 23, wherein the polyol and the isocyanate are provided in about a 1:1 ratio by volume.

Claim 32 (previously presented): The method of claim 23, further comprising applying pressure to the reaction components of step e).

Claim 33 (previously presented): The method of claim 23 wherein the reinforcement structure is sprayed with a thickness of about 100 mils of the polymeric resin.

Claim 34 (currently amended) A sprayable polyurethane composition comprising from about 0.5% to 30% by weight of a fibrous material, an aramid fiber or a mixture of aramid fiber and at least one of polyethylene, carbon or ceramic fiber, wherein the polyurethane is solvent-free and is the reaction product of a polyol and a polyisocyanate.

Claim 35 (canceled) ~~The composition of claim 34 wherein the fibrous material is an aramid, polyethylene, carbon, or ceramic fiber, or mixtures thereof.~~

Claim 36 (currently amended) The composition of claim ~~35~~ 34 wherein the aramid fiber is aramid fiber pulp.

Claim 37 (currently amended): A flexible liner comprising:

- a) a ~~porous~~ geotextile fabric; and
- b) a polyurethane composition comprising a fibrous material sprayed over said ~~porous~~ geotextile fabric, whereby to form a monolithic membrane with the geotextile fabric.

Claim 38 (previously presented): The flexible liner of claim 37, wherein the thickness of the polyurethane is sprayed at about 100 mils.

Claim 39 (previously presented): The flexible liner of claim 37, wherein the fibrous material is an aramid, polyethylene, carbon, or ceramic fiber, or mixtures thereof.

Claim 40 (previously presented): The flexible liner of claim 37, wherein the aramid fiber is aramid fiber pulp.

Claim 41 (currently amended): A process for the preparation of a flexible liner comprising:

- a) providing a sheet of a ~~porous~~ geotextile fabric having a perimeter edge; and
- b) spraying a polyurethane composition comprising a fibrous material onto said ~~porous~~ geotextile fabric, whereby to form a monolithic membrane with the geotextile fabric.

Claim 42 (previously presented): The process of claim 41, wherein the spraying of the polyurethane is a thickness of about 100 mils.

Claim 43 (previously presented): The process of claim 41, wherein the fibrous material is an aramid, polyethylene, carbon, or ceramic fiber, or mixtures thereof.

Claim 44 (previously presented): The process of claim 43, wherein the aramid fiber is aramid fiber pulp.

Claim 45 (previously presented): The process of claim 41, further comprising placing the geotextile fabric on top of an object to be lined.

Claim 46 (original): The process of claim 45, further comprising attaching the geotextile fabric to the object with an adhesive, prior to spraying the polyurethane composition, wherein the perimeter edge of the geotextile fabric is not tacked to the object to allow gas to escape.